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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/710,875

08/10/2004

David R. Hall

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4874

38046

7590

08/24/2006

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EXAMINER

WONG, ALBERT KANG

ART UNIT

PAPER NUMBER

2612

DATE MAILED: 08/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/710,875

Applicant(s)

HALL ET AL.

Examiner

Albert K. Wong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 August 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-31 is/are allowed.
- 6) ☒ Claim(s) 1-17 and 32-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

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1. This Office action is in response to the application filed August 10, 2004. This application is a continuation-in-part of 10/710,790, filed August 3, 2004 which claims the benefit of provisional application 60/481,225, filed August 13, 2003. It appears that the claimed subject matter was first disclosed in the instant application. If applicant asserts the benefit of an earlier filed application, he is requested to point out, in any prior application, the disclosure sufficient to support the claim. Claims 1-44 are pending.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 6, 14-18, and 43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 6, it is not clear how time stamps are used to measure latency between processing elements. Time stamps do not measure latency.

Regarding claims 14 and 43, the computational latency lacks an antecedent basis. It is not clear the relevance of fixing the latency to a known constant.

Regarding claim 15, it is not clear how the method of determining total signal latency is related to the method of synchronizing clocks are recited in claim 1.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-5 and 7-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chenin (6,424,595) in view of Galison.

Regarding claim 1, Chenin discloses a method of synchronizing clocks in a downhole system by determine the time at the downhole clock and the round trip time of a signal sent from the surface to the downhole clock and back. This determines the clock offset and a further correction is later sent. Chenin, however, does not teach synchronization by sending a time adjusted to compensate for the latency of the system. Galison (page 21-22) discloses a method of synchronizing clock as proposed by Albert Einstein. This method involved determining the latency of the medium between a master clock and a slave clock and adjusting the synchronizing time to compensate for the latency. It would have been obvious to use the synchronizing method as described by Einstein since there is a variety of ways to synchronize clocks and the system in Einstein does not require the slave clock to be operating prior to synchronization.

Regarding claim 2, the system in Chenin is used to control a tool. It would have been obvious to integrate the network with a tool string because the close proximity of the device

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would reduce the latency between the time a command is sent from the network till the time of actuation by the tool.

Regarding claims 3-5, it is well known to use drill pipes with a wire conductor with inductive coils to couple signals between sections of drill pipes for control of downhole tools in a network. Further, such pipes may have coils in electrically insulated troughs. It would have been obvious to use such conventional means to perform a conventional function.

Regarding claim 7, the recited elements are conventional controllers in a downhole system. It would have been obvious to use such processing means to control devices.

Regarding claims 8-9, the clocks in Chenin is located at the surface and at the drill string.

Regarding claim 10, it would have been obvious to many clocks along the drill string since there are typically many devices located along the drill string that requires a control signal.

Regarding claim 11, the tools recited are conventional tools within a downhole environment. It would have been obvious to associate tools with clocks as suggested by Chenin.

Regarding claim 12, it would have been obvious to connect a master clock to a network for setting the master clock.

Regarding claim 13, the number of clocks is considered an obvious design choice based upon the number of devices controlled downhole.

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 32-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Chenin.

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Regarding claim 32, Figure 1 teaches the claimed controlled processing element in communication with a synchronizing clock. The drill string is considered the downhole network. There is a downhole clock shown as item 18.

Regarding claim 33, see figure 1.

9. Claims 34-40, 42, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chenin.

Regarding claims 34-36, 38-41, and 44, these limitations have been addressed above.

Regarding claim 37, Chenin teaches the use of time stamps in the synchronizing process. It would have been obvious to use time stamps for other purposes such as recording the time a sensor measurement was taken.

Regarding claim 42, it is conventional to use a crystal as a clock. It would have been obvious to use conventional items for their known purposes.

10. Claims 18-31 are allowed.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert K. Wong whose telephone number is 571-272-3057. The examiner can normally be reached on M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on 571-272-7308. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Albert K. Wong
August 18, 2006



ALBERT K. WONG
PRIMARY EXAMINER